Laboratory spectroscopy of planetary ices in the VUV and THz spectral regions

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I will describe efforts to study the spectroscopy of condensed films at low temperature (10-150 K) in both the far-infrared/THz (30-3000 μm) and vacuum-ultraviolet (VUV, 100-200 nm) ranges of the electromagnetic spectrum. In each of these wavelength ranges, there is a general lack of laboratory data for ices relevant to astrophysical environments such as the outer Solar System. These studies are focused on mixtures of candidate species applicable to planets and satellites in the outer solar system, such as those dominated by H2O or N2 with other important species such as CO2, CH4, and NH3. We will discuss our results in relation to analyses of VUV data sets from the UVIS instrument on Cassini, far-infrared data from missions such as Herschel and SOFIA, as well as sub-mm observatories such as ALMA.